

**March 6, 2003**

**Statement of**

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**Before the**

**Subcommittee on Oversight of Government Management, the Federal  
Workforce and the District of Columbia  
Committee on Governmental Affairs  
United States Senate**

I am pleased to appear before the Subcommittee today to discuss NASA's Human Capital challenges. The Agency faces a number of strategic obstacles to our ability to manage our Human Capital effectively and efficiently. The President forwarded legislation to Congress last May to provide our managers the tools they need to reshape and reconstitute a capable world class workforce. We've worked with Chairman Sherwood Boehlert of the House Science Committee to reinvigorate legislative solutions to address our workforce issues, and we appreciate the hard work of Mr. Boehlert and his staff. Mr. Chairman, I know that you are a firm believer that reforms are needed to enable Federal managers to manage their human capital more strategically, and have supported designing flexible tools to make the federal service desirable. I welcome this opportunity to work with you in these endeavors. We were similarly gratified that the Homeland Security Act included several Government-wide human capital provisions, including several that NASA had on its legislative agenda forwarded by the Administration last summer. This is a step in the right direction.

When President Eisenhower and the Congress created NASA, they sought to establish a government agency that could undertake and overcome the Nation's technological challenges in aeronautics and space exploration. Without NASA, there would be no American presence to take up these challenges. During the Cold War, the very best minds of our Nation joined forces to transform the futuristic dreams of our parents' generation into the historic reality our children learn about in today's classrooms. The legacy of that work continues today. Across the Nation, NASA scientists, engineers, researchers, and technicians have made and continue to make remarkable discoveries and advancements that touch the lives of every American. We are an Agency committed to "pioneering the future" as only NASA can.

In the wake of the Columbia tragedy, much has been written and discussed in the public debate about the prospect of future expertise at NASA. One of the greatest challenges before the Agency today is having the people - the human capital - available to forge ahead and make the future breakthroughs tomorrow's everyday reality. NASA's history is celebrated worldwide

for having accomplished the things that no one has ever done before. None of those achievements happened by accident. They were the result of management innovation, revolutionary technologies and solid science and research. These three pillars of NASA's achievement were built by the men and women of NASA and without them, the history of achievement that we celebrate in aeronautics and space exploration never would have been possible. History is made everyday at NASA; but to maintain our leadership position, a new generation must be forged to carry our Nation's innovation and exploration forward.

The legislation we will forward to the 108<sup>th</sup> Congress will be the same as that which the President submitted last year, with the possible inclusion of additional provisions recently developed, and is intended to provide us the flexible management tools to make sure NASA can continue to attract and retain the best and brightest minds and to reconfigure and reconstitute that workforce to meet the changing demands of that future innovation and exploration. The list of tools includes:

To recruit new talent:

Scholarship-for-Service Program

Enhanced recruitment bonuses

- Remove limitation to 25% of base pay for only one year & include locality pay
- Allow more than one method of payment (lump sum). E.g., installments pegged to continued performance.

In addition, Streamlined Hiring Authority has been provided on a government-wide basis by section 1312 of the Homeland Security Act (P. L. 107-296):

- direct hiring for positions in "critical needs" or "severe shortage" categories, and
- category rating system for evaluating candidates (for any position)—able to select from top group, not limited to top three or numerical ratings

To retain existing talent, attract short-term mid-level talent:

1. NASA-Industry Exchange Program
2. Allow extension of IPA Assignments from 4 to 6 years
3. Term Appointments
  - Allow extension of term appointments from 4 up to 6 years
  - Allow conversion to permanent without second round of competition if competitively selected for term appointment

Many NASA projects run more than 4 years and would benefit for retention of these individuals for the duration of the project.

4. Enhanced relocation and retention bonuses
  - Remove limitation to 25% of base pay for only one year & include locality pay
  - Allow more than one method of payment (lump sum). E.g., installments pegged to continued performance.
5. Allow increase maximum annual pay for NASA excepted service appointments from \$134,000 to \$142,500
6. Allow increased pay for critical positions to level of the Vice President.

To try other new, quicker and more effective tools:

Modify current law to allow NASA to request and implement a demonstration project, subject to OPM approval, quicker and without any limitation on the number of employees that would be covered by the project.

I note with appreciation to you, Mr. Chairman, that several of these proposals were enacted into law last year as part of your amendment to the Homeland Security Act.

- In addition, we are working with the Administration on further legislative tools, such as enhanced annual leave, that may be forwarded later this session.

The reduction in NASA's workforce during the 1990's has led to an imbalance of skills; too may in some areas not enough in emerging technologies (e.g., nanotechnology). In addition, NASA is confronted with convergence of three trends:

1. reduction in number of science and engineering graduates;
2. increased competition from traditional aerospace sector and non-aerospace sector for this reduced pool of scientists and engineers; and
3. increasing number of experienced NASA employees eligible for retirement.

NASA needs to have better tools to recruit new hires, retain existing mid-level workforce, and reconfigure the workforce to meet emerging needs.

### *Vision And Mission*

When I assumed the leadership of NASA a little over a year ago, I wanted to ensure that this pathfinder Agency had the means and mission to support that pioneering spirit through the next several decades. NASA has a vital role to play in today's world. My testimony today will touch on the management challenges that NASA must overcome if we are to achieve our mission. NASA is intent on continuing the gains made over 45 years while pushing the edge of the envelope of what appears today to be impossible. We have developed a roadmap to continue our work in a more efficient, collaborative manner. NASA will fulfill its imperative not only for the sake of human knowledge – but also for our future and our security.

In that spirit, we developed a new strategic framework and vision for the Agency. It is a blueprint for the future of exploration and a roadmap for achievement that we hope will improve the lives of everyone in this country and everyone on this planet. Our new vision is to improve life here, to extend life to there, and to find life beyond. This vision frames all that we do and how we do it. NASA will do this by implementing our mission – to understand and protect our home planet; to explore the Universe and search for life; to inspire the next generation of explorers...as only NASA can.

To understand and protect our home planet, NASA will work to develop and employ the technologies that will make our Nation and society a better place. We will work to develop technology to help forecast the impact of storms on one continent upon the crop production on another; we will work to trace and predict the patterns of mosquito-borne diseases, and study

climate, geography and the environment - all in an effort to understand the multiple systems of our planet and our impact upon it.

Our mission's second theme is to explore the universe and search for life. NASA will seek to develop the advanced technologies, robotics, and science that eventually will enable us to explore and seek firsthand the answers and the science behind our most fundamental inquiries. If we are to achieve such ambitious objectives, there is much we still must learn and many technical challenges that must be conquered.

For example, today's rockets that have been the engine of exploration since the inception of space travel are today at the limit of what they can deliver. Propulsion is only one of the challenges facing further exploration of space. The physical challenges incurred by our space explorers also must be better defined. We still do not know or understand the long-term effects of radiation and exposure to a microgravity environment upon the human body. The infant steps we have taken via the Space Shuttle and the International Space Station have given us many answers to explore, but they have yielded even more questions for us to consider.

Our third mission objective is to inspire the next generation of explorers. America often looks to NASA to help our Nation build an unequalled pool of scientific and technical talent. NASA accepts that responsibility and in partnership with the US Department of Education, the National Science Foundation, other Federal agencies, and industry and educational partners, we will work to motivate our Nation's youth to embrace the study of mathematics, science and engineering disciplines. To emphasize the important role that education plays at NASA, last year we established a new Education Enterprise. The Education Enterprise will unify the educational programs in NASA's other five enterprises and at our 10 Field Centers under a One NASA Education vision. NASA's Education imperative will permeate and be embedded within all the Agency's initiatives. The dedicated people in this new Enterprise will work to inspire more students to pursue the study of science, technology, engineering, and mathematics, and ultimately to choose careers in aeronautics and space-related fields. Without the scholars to take the study of these disciplines to their next level, the missions we seek to lead remain bound to the launch pad. As the US Department of Labor has reported, the opportunities in the technology sector are expected to quadruple in this decade. Unfortunately, the pool of college students enrolled in mathematics, science and engineering courses continues to decline. NASA faces similar challenges with having the scientific and engineering workforce necessary to fulfill its missions.

Our mission statement concludes with the statement, "as only NASA can." Our Agency is one of the Nation's leading research and technology Federal agencies. We possess some of our Nation's most unique tools, capabilities and expertise. NASA represents a National asset and investment unparalleled in the world. Nonetheless, to achieve success in our mission, our activities must focus on those areas where NASA can make unique contributions. To make the best use of our workforce and other resources, we must also leverage the unique contributions of our partners in academia, industry, and other federal agencies.

Our commitment to the American taxpayer is to continue providing a direct and very tangible means of improving life on our planet. We will overcome challenges and push on in the name

of science and in the pursuit of knowledge to benefit all people. Extending life beyond the reaches of our Earth is not a process driven by any particular destination. Rather it is driven by science that will contribute to the social, economic, and intellectual growth of our society and the people who make that science possible are our greatest asset.

## ***Workforce Challenges***

NASA's ability to fulfill its ambitious mission is dependent on the quality of its workforce. An Agency is only as strong as its people. They need to be world-class if they are to be expected to break new ground in science and technology, explore the universe, or pioneer exciting discoveries here on Earth and beyond. Being "good enough" will not suffice; NASA needs the best and the brightest to build a world-class workforce. This means that NASA requires not only a broad pool of scientists and engineers who form the core of our workforce, but also highly competent professionals who can support NASA's technical programs, and address the Agency's financial, human capital, acquisition, business management, and equal opportunity challenges.

Today, NASA faces an increasing management challenge in attracting, hiring, and retaining the talented men and women who, inspired by our amazing discoveries and innovations of the past 4 decades, will help mold the future of our Nation's aeronautics and space programs. As a Nation, we must ensure that the Agency continues to have the scientific and technical expertise necessary to preserve our role as the world's leader in aeronautics, space and Earth science, and emerging technology research. The President already has indicated his commitment to the strategic management of human capital in the Federal workforce, by making this imperative, first on in his Management Agenda. In fact, the President's Management Agenda specifically references the human capital challenge that NASA faces and related skill imbalances. The President's recognition of the human capital challenges faced by NASA and other agencies is shared by the Government Accounting Office, which has placed the management of human capital as one of the items on the government-wide "high-risk list."

At NASA, we are ready to do our part to make sure that we have the best people for the job at hand, and to do that we need to manage this resource efficiently and responsibly, as well as compete favorably in a very competitive market place. We have developed a Strategic Human Capital Plan to establish a systematic, Agency-wide approach to human capital management, aligned with our vision and mission. The Plan assesses NASA's current state with respect to human capital management, then goes on to identify goals, barriers, improvement initiatives, and intended outcomes. The Plan is an integrated approach to address the concerns of the Administration as well as our internal human capital needs. We are making progress, as evidenced by our improved ratings on the President's Management Scorecard.

NASA's ability to implement its mission in science, technology, and exploration depends on our ability to reconfigure and reconstitute a world-class workforce – peopled with skilled workers who are representative of our Nation's strengths. The human capital flexibilities that we are requesting will help us shape the workforce necessary to implement our mission today and in the future.

Today, NASA's ability to maintain a world-class workforce with the talent it needs to perform cutting-edge work is threatened by several converging trends. Each trend in isolation is a concern; in concert, the indicators are alarming. We need to address these trends now by anticipating and mitigating their impact on NASA's workforce in the near-term and beyond. These indicators could lead to a severe workforce crisis if we do not take prompt action. The warning signs are here, and we are paying attention. Many of our planned actions to deal with threats to our human capital are possible without the aid of Congress; but some of the solutions require legislation. We are proposing a number of human capital provisions, which the Administration believes are crucial steps toward averting a workforce crisis.

The trends I'd like to discuss with you today fall into 2 broad categories. First, there are trends that affect the nationwide labor market, and the applicant pool from which we draw our workers. These indicators affect other employers, not just NASA, and point to worsening employee pipeline issues in the future. Secondly, I would like to address a number of NASA-specific demographics. Coupled with the nationwide issues we face, the NASA picture shows us that we need to take action and take it now.

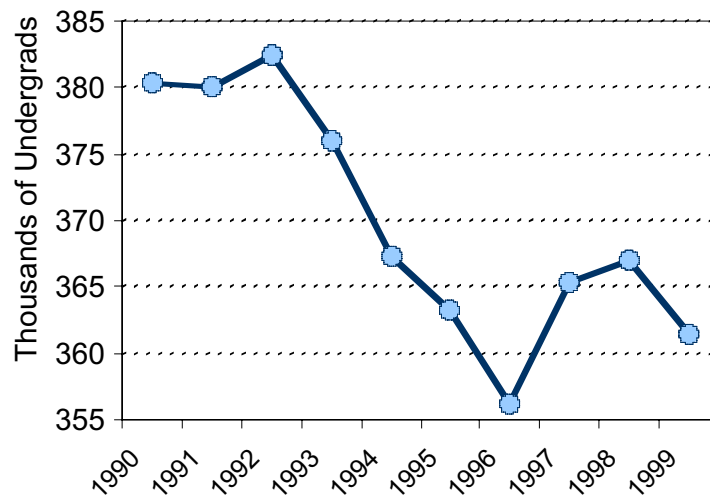
## ***Nationwide Trends***

### **➤ *The Shrinking Scientist and Engineer (S&E) Pipeline***

***There is growing evidence that the pipeline for tomorrow's scientists and engineers is shrinking.*** We are facing a critical shortage of students pursuing degrees in disciplines of critical importance to NASA-- science, mathematics, and engineering. Several recent National Science Foundation reports document a disturbing trend: the science and engineering (S&E) pipeline has been shrinking over the past decade. This trend begins at the undergraduate level and extends through the ranks of doctoral candidates. Here are some statistics that illustrate what currently is happening to the S&E pipeline:

- Undergraduate Engineering Enrollment -- The number of students enrolling in undergraduate engineering decreased by more than 20% between 1983 and 1999.  
*[National Science Board, Science and Engineering Indicators-2002, Arlington, VA: National Science Foundation, 2002 (NSB-02-01)]*

### ***Undergraduate Engineering Enrollment Trend***



- Graduate S&E Enrollment -- Engineering graduate enrollment also declined from a high in 1992 of 128,854 to 105,006 in 1999. Graduate enrollment in the physical sciences, earth sciences, and mathematics also showed a downturn between 1993 and 2000. *[National Science Foundation Data Brief, Growth Continued in 2000 in Graduate Enrollment in Science and Engineering Fields (NSF-02-306), December 21, 2001]*
- Post-Graduate S&E Enrollment -- By the year 2000, the number of doctorates awarded annually in engineering had declined by 15% from its mid-decade peak; since 1994, the number of doctorates in physics declined by 22%. Even in mathematics and computer science – where job opportunities are on the rise – the number of doctorates awarded declined in 1999 and 2000. *[National Science Foundation Info Brief, Declines in U.S. Doctorate Awards in Physics and Engineering (NSF-02-316), April 2002]*
- Foreign S&E Enrollment -- 40% of the graduate students in America's engineering, mathematics, and computer science programs are foreign nationals. In the natural sciences, the number of non-citizens is nearly 1 in 4. When we concentrate on engineering graduate students who are U.S. citizens, the number of enrollees declined precipitously between 1993 and 1999: from more than 77,000 to just over 60,000, a 23% drop in under a decade. *[National Science Board, Science and Engineering Indicators-2002, Arlington, VA: National Science Foundation, 2002 (NSB-02-01)]*
- Aerospace Enrollment -- Graduate enrollment in aerospace engineering has declined steadily in recent years - from 4,036 in 1992 to 3,407 in 2000, pointing to a diminishing interest in aerospace as a career. *[National Science Board, Science and Engineering Indicators-2002, Arlington, VA: National Science Foundation, 2002 (NSB-02-01) and National Science Foundation Data Brief, Growth Continued in 2000 in Graduate Enrollment in Science and Engineering Fields (NSF-02-306), December 21, 2001]*

NASA is not alone in its search for enthusiastic, qualified employees representative of the best that our Nation has to offer. Throughout the Federal government, as well as the private sector, the challenge faced by a lack of scientists and engineers is real and is growing by the day. The

situation is summarized in the Hart-Rudman Commission's Final Report issued last year: "The harsh fact is that the US need for the highest quality human capital in science, mathematics, and engineering is not being met."

The nationwide trends I have described have great significance to NASA since the Agency relies on a highly educated and broad science and engineering workforce: nearly 60% of the total NASA workforce is S&E, and fully half of those employees have Masters or Doctorate degrees.

➤ ***Increased Competition for Technical Skills***

At the same time that the national S&E pipeline is shrinking, ***the demand for the technical skills NASA needs is increasing.*** The job market in the S&E occupations is projected to increase dramatically over the next ten years. The need for technical expertise no longer is confined to the technical industries that have been traditional competitors. NASA will face competition from new arenas as graduates in the S&E fields now are sought after by the banking industry, entertainment industry, and elsewhere in career fields not traditionally considered as primary choices for technical graduates. In the academic sector, traditionally not a competitor, we find ourselves vying for the same high-level technical workers. America's top schools now offer very competitive salaries to academicians with world-class skills – the same skills NASA seeks. Specifically, here are some of the trends that the Nation is seeing in the job market:

- Increasing S&E Positions -- The Bureau of Labor Statistics projects that employment in the fields of science and engineering is expected to increase about 3 times faster than the rate for all occupations between 2000 and 2010, mostly in computer-related occupations. Increases in engineering and the physical sciences are projected at 20% and 15%, respectively. [National Science Board, *Science and Engineering Indicators-2002*, Arlington, VA: National Science Foundation, 2002 (NSB-02-01)]
- Increasing S&E Retirements -- This report also notes that with current retirement patterns, the total number of retirements among S&E-degreed workers will increase dramatically over the next 20 years. More than half of S&E-degreed workers are age 40 or older, and the 40-44 age group is nearly 4 times as large as the 60-64 age group. As employers seek to fill vacancies created by these retirements, ***competition for quality S&E workers will intensify.***
- Low Interest in Government Employment -- According to an October 2001 Hart-Teeter poll, the lowest levels of interest in government employment were found among college-educated and professional workers. Only 16% of college-educated workers express significant interest in working for the Federal government, and a like number of professionals and managers would opt for a government job. In contrast, the poll also revealed that positive perceptions of private sector work increased dramatically among those with formal education. This indicates that NASA will face a significant challenge in trying to attract experienced mid and senior level professionals to the Agency.



## ***NASA Demographics and Trends***

### **➤ *Current Skills Imbalances, Gaps, and Lack of Depth Within the NASA Workforce***

The trends I have just outlined are not unique to NASA; we share them with other employers in the labor market today. Unfortunately, the difficulties they present to NASA's ability to manage our human capital are only exacerbated by several Agency-specific threats, warning us that we need to pay attention to these indicators before they result in a crisis. The challenge of acquiring and retaining the right workforce is not a problem of the future—it exists now. The Agency currently has skill gaps in areas such as nanotechnology, systems engineering, propulsion systems, advanced engineering technology, and information technology. In emerging technology areas, NASA projects the need to employ more civil servants in “hard to fill” areas such as astrobiology, robotics, and fundamental space biology. In other professional areas such as financial management, acquisition, and project management, a lack of depth is becoming detrimental to our ability to manage our resources and programs.

NASA has undergone significant downsizing over the past decade, reducing its workforce from approximately 25,000 civil servants in FY 1993 to approximately 19,000 today. NASA made every effort to retain key skills, but in order to avoid involuntary separations in achieving those reductions, it was not always possible to control the nature of the attrition. Inevitably, we lost some individuals with skills we couldn't afford to lose, and now these skills need to be replaced. Through downsizing and the normal attrition process, we lost key areas of our institutional knowledge base.

The 2001 report of the Aerospace Safety Advisory Panel made specific references to NASA's skills deficiencies when they noted the following:

- NASA faces a critical skills challenge in the Shuttle and International Space Station programs despite resumption of active recruitment.
- The Agency must ensure the availability of critical skills, using appropriate incentives when necessary to recruit and retain employees.
- Recent downsizing and hiring limitations by the Agency may cause a future shortage of experienced leadership.
- The shortage of experienced, highly skilled workers has contributed to increases in workforce stress.

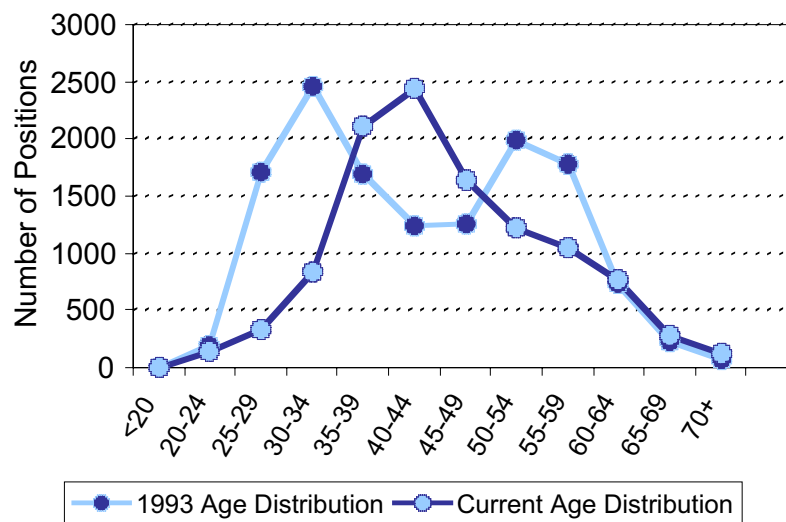
Unfortunately, NASA's need to reinvigorate the workforce with the right skills and abilities is occurring at the very time in which competition for workers with those skills is intense.

### **➤ *Potential Significant Loss of Knowledge Due to Retirements within the S&E Workforce***

I have just discussed the skills imbalances that NASA faces today. The situation promises to worsen with time. New skills imbalances will occur over the next several years as the aging workforce reaches retirement eligibility. Approximately 15% of NASA's S&E employees are

eligible to retire now. Within 5 years, almost 25% of the current workforce will be eligible to retire. Historical attrition patterns suggest that the percentage of those eligible for retirement should remain level at around 15-16% each year. In an Agency where the expertise is not as deep as we would like it to be, even a few retirements can be critical. Everywhere I go across the NASA Centers, I hear the same story: “We’re only one-deep. We can’t afford to lose that skill.” Clearly the Agency must begin preparing for its projected workforce needs now since a quarter of its senior engineers and scientists will depart this decade and the job market is far more competitive than in the past.

Another way to look at the potential loss of knowledge is to examine NASA’s current S&E profile. At this time, within the S&E workforce, NASA’s over-60 population outnumbers its under-30 population by nearly 3 to 1. The age contrast is even more dramatic at some NASA



Centers, at 5 to 1! By comparison, in 1993 the under-30 S&E workforce was nearly double the number of over-60 workers. This is an alarming trend that demands our immediate attention with decisive action if we are to preserve NASA’s aeronautics and space capabilities.

### ➤ ***Increased Recruitment and Retention Problems***

The last NASA trend I want to discuss with you today involves the evidence of increased difficulty of recruiting and retaining employees. Historically, NASA has enjoyed unusually low attrition rates, due in part to the attraction of our unique mission and the fact that our employees simply love their work and stay on the job longer than the typical worker. However, one recent trend is of concern. We have noted a change in the attrition pattern among NASA’s most recent hires. Compared to an overall attrition rate of just under 4% for all S&E’s, the departure rate for S&E’s hired since 1993 is nearly double - despite the fact that in the fall of 2000 the Agency completed downsizing.

Our challenge continues once we manage to hire personnel. Although our historical attrition rates are low, we notice an alarming development among our youngest S&E population. After

factoring out the 55+-retirement eligibility group, attrition among the S&E workforce is highest in the 25-39 age group. This phenomenon has a multi-faceted impact on NASA. It represents a lost investment for the Agency; shrinks the potential pool of future leaders and managers; and skews the average age of S&E workforce toward retirement eligibility age.

### *Help is Needed*

All of these trends provide immediate warning signals that significant measures must be taken to address workforce imperatives that ultimately impact mission capability. We cannot resolve these new and emerging problems with past solutions, nor are current personnel flexibilities adequate.

To address the human capital challenges I have outlined for you today, NASA needs additional tools. We have used the ones we have and we have been innovative and imaginative but we need the Congress' assistance. Specifically, we need to:

- Encourage students to pursue careers in science and technology
- Compete successfully with the private sector to attract and retain a world-class workforce.
- Reshape the workforce to address skills imbalances and gaps, and
- Leverage outside expertise to address skills gaps and strengthen NASA's mission capability.

Each request in the legislative proposal will be carefully crafted to enhance NASA's ability to manage our human capital efficiently and effectively, in concert with the mandate of the President's Management Agenda – and plain old-fashioned good, sound management. Many of these provisions have been implemented by other agencies (such as the Department of Defense in their demonstration projects, and the Internal Revenue Service through their reform legislation). Without these legislative tools, NASA's challenges will soon become its crisis in human capital management.

## ***Legislative Proposals***

We are proposing several legislative provisions to address the threat to the S&E pipeline. The ***Scholarship for Service*** program would offer college scholarships to students pursuing undergraduate and graduate degrees in science, engineering, mathematics, or technology. In return, the students would fulfill a service requirement with NASA following their graduation, thus providing a return on our investment. Current statutes do not allow a service obligation for scholarship recipients.

The ***NASA Industry Exchange Program***, modeled on the very successful Intergovernmental Personnel Act authority, introduces a means for NASA to engage in mutually beneficial, collaborate ventures with industry to infuse new ideas and perspectives into the Agency, develop new skills within the workforce, and strengthen mission capabilities. Without such an authority, talented individuals from industry remain an untapped resource for the Agency since the salaries and benefits of the Federal sector are not competitive with the compensation packages offered to industry's most talented workers. Assignments would be limited to 2 years, with a 2-year extension, and would be subject to the full range of Federal criminal laws in title 18, including public corruption offenses, and adhere to current statutes covering government ethics, conflicts of interest, and procurement integrity. The Information Technology Exchange Program, established in the E-Government Act of 2002, which was passed by the House during the last Congress, represents a similar endeavor to establish an exchange program between the Federal Government and the private sector in order to promote the development of expertise in information technology management, and for other purposes.

Enhancing the ***Intergovernmental Personnel Act*** authority to permit assignments up to six years (rather than 4) is another tool that will facilitate knowledge transfer – an important goal of an Agency that must sustain its intellectual capital. This flexibility will allow individuals from academia or other institutions to continue working in support of long-term projects or programs when the need for continuity is critical.

***Enhanced recruitment, relocation, and retention bonuses*** will help us with enhanced authority to offer financial incentives to individuals to come to work for us, to relocate to take on a new assignment, or to remain with the Agency instead of leaving to pursue a more lucrative job opportunity or retiring. Current bonus authority offers up to 25% of basic pay, and has proved useful – to a point. Our proposal would base bonuses on the higher locality pay salaries, allow greater amounts when coupled with longer service agreements, and make more flexible payment options available (such as a choice between up front payments, installments, and payments at the conclusion of an assignment). These payment options could be tailored to the situation at hand, and tie payment of the incentive to actual performance.

The ***enhanced annual leave provisions*** are targeted particularly to mid-career hires, who likely would give up attractive vacation packages to become first-time Federal employees. Rather than starting out with the minimal annual leave benefits available in current law, these provisions would permit all senior executives to accrue annual leave at the maximum rate; and permit crediting new employees with up to 10 days of annual leave as a recruitment incentive.

These flexibilities help NASA to compete with the compensation packages available to private sector employers.

The ***term appointment authority*** is used extensively within the Agency to support many NASA programs and projects. It is useful for work of a time-limited duration, and it allows the Agency to terminate employment without adverse action when the need for the work/competencies wanes. The bill's provision to allow a limited number of term appointments to be extended up to six years, rather than four, will enhance its usefulness by accommodating the length of some NASA programs and projects. In addition, the bill provides that a term employee may be converted to a permanent position in the same line of work without further competition, provided the employee was initially hired under a competitive process and the public notice specified the potential for conversion. This provision does not alter any feature or principle of the competitive process, but eliminates the need for duplicative competition. Ultimately it may make the concept of term appointments more attractive to potential applicants and thereby provide a more robust labor pool for NASA management to consider. Conversions of term employees to permanent positions that differ from the position for which the employee initially competed would require internal competition.

In order to attract world-class talent into NASA's most essential positions, we propose changes to the authority to pay employees in ***critical positions***. We seek authority to grant critical pay for up to 10 positions per year, subject to approval by the NASA Administrator, with pay up to that of the Vice President (currently \$198,600). These enhancements will help us compete in an enormously competitive job market. The provisions raising the annual ***compensation cap for NASA excepted employees*** appointed under the Space Act from Level IV of the Executive Schedule to Level III will address this need as well. Based on the current pay scale, this would allow an increase from \$134,000 to \$142,500.

Separation incentives (***"buyouts"***) are a valuable tool to encourage voluntary attrition as the Agency rebalances skills and reshapes its workforce. NASA needs the tools to encourage targeted attrition in areas in which the need for certain skills has diminished so that it can recruit and reshape a workforce that is aligned to current and future mission needs. The Homeland Security Act provides authority to pay up to \$25,000. However, we have found that this amount is not always enough to entice highly paid NASA professionals to leave; the typical NASA employee stays on the job longer than average and is dedicated to the work. Our proposal would allow NASA to pay buyouts up to ***50% of base salary*** to a limited number of employees, under circumstances outlined in our Agency plan.

Finally, the ***streamlined demonstration authority*** provision provides the Agency with an effective and extensively tested mechanism for pursuing additional human resources innovations in response to changing workforce needs. A number of agencies, notably the Department of Defense and Department of Agriculture, have operated highly successful projects. Unfortunately, the legal requirements to initiate a demonstration project are daunting. Current law limits "demo" projects to 5,000 employees, requires multiple Federal Register

notices, a public hearing, and a 180-day notice to affected employees. Once an agency successfully tests a system, it must seek additional legislation to make that system permanent. The authority we are seeking would remove the coverage limit to allow widespread testing of new ideas, and shorten the steps to implement a project. Once a project proves successful, the Office of Personnel Management could approve conversion from a demo to a permanent *alternative personnel system* without further legislation.

Mr. Chairman and Members of the Subcommittee, each of these legislative provisions when taken individually will only help NASA deal with its human capital strategic threats to a limited degree. However, when taken together as an integrated package they form a strong nucleus in support of the Agency's Strategic Human Capital Plan and the President's Management Agenda, and will be invaluable as we deal with a diminishing pipeline, recruitment and retention of a world-class workforce, and skills imbalances. With these tools in hand, we will be able to avert a serious human capital crisis at NASA.

The missions we seek to lead and make possible are the visions that we all have for our future – new launch systems, innovations in high-performance computing, advances in biological research and exploration of our cosmos that extend our lives and way of life out there. Those things can only happen if we have the people that can make them happen. Technology and exploration will go nowhere without the human know-how and presence to make today's impossible into tomorrow's reality. After meeting and working with many of the men and women of NASA during the past year, I know we can do those things and I look forward to working with you and sharing the rewards of your investment and trust in us.